

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 December 2004 (29.12.2004)

PCT

(10) International Publication Number
WO 2004/113489 A1

(51) International Patent Classification⁷: C12G 3/08,
B01D 61/02, 61/10

(21) International Application Number:
PCT/PT2004/000014

(22) International Filing Date: 18 June 2004 (18.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
102976 20 June 2003 (20.06.2003) PT

(71) Applicants (for all designated States except US): INSTI-
TUTO SUPERIOR TÉCNICO [PT/PT]; Av. a Rovisco
Pais, P-1049-001 Lisboa (PT). QUINTA DE PANCAS,
VINHOS, S.A. [PT/PT]; Quinta de Pancas, P-2580-354
Alenquer (PT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DA SILVA
GONÇALVES, Fernando, Manuel [PT/PT]; Rua
Cláudio Nunes, N.º. 29-2º Esquerdo, P-1500-175 Lisboa

(PT). CORREIA DE PINNHO MARIA, NORBERTA,
NEVES [PT/PT]; Departamento de Engenharia Química,
Instituto Superior Técnico, Av. Rovisco Pais, P-1049-001
Lisboa (PT).

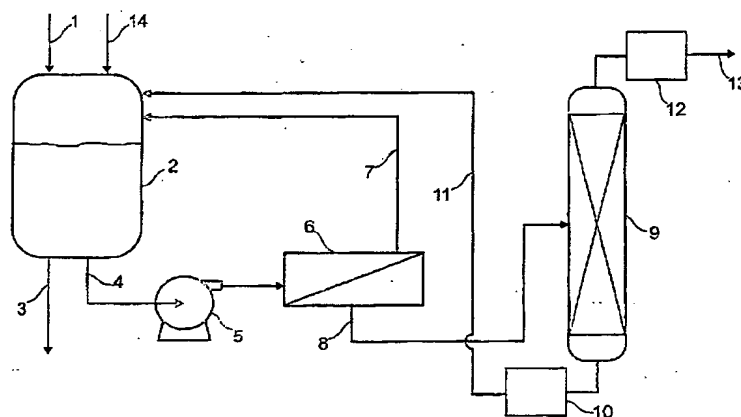
(74) Agent: PEREIRA DA CRUZ, João, Manuel, May; Rua
Vitor Cordon, N.º. 14, P-1249-103 Lisboa (PT).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: INTEGRATED NANOFILTRATION PROCESS TO REDUCE THE ALCOHOL CONTENT OF ALCOHOLIC BEV-
ERAGES



(57) Abstract: The invention relates to a process for the reduction of the alcohol content of alcoholic beverages, namely wine, preserving the organoleptic characteristics of the original beverage. The process consists of the total or partial removal of the ethanol using nanofiltration membranes (6), which allow the passage of a mixture of water, ethanol and some salts, while retaining the aromatic compounds in the original beverage. The permeate (8), the mixture of water and ethanol that passes through the membrane, is distilled to remove the ethanol. Following the removal of the ethanol (13), this stream (11) is recirculated to the beverage to be treated, allowing the production of a beverage with lower alcohol content that retains the organoleptic properties of the original beverage.

WO 2004/113489 A1



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*